



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/966,163 | 09/28/2001 | Paul E. Burrows | VIT 0012 PA | 4083 |

7590 03/16/2004
Killworth, Gottman, Hagan & Schaeff, L.L.P.
Suite 500
One Dayton Centre
Dayton, OH 45402-2023

EXAMINER

HON, SOW FUN

ART UNIT PAPER NUMBER

1772

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,163

Applicant(s)

BURROWS ET AL.

Examiner

Sow-Fun Hon

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-19 and 21 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Rejections Withdrawn

1. The 102(b) and 103(a) rejections in the action mailed 09/17/03 have been withdrawn due to Applicant's amendment filed 12/15/03.

New Rejections

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10, 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the Markush group of environmentally sensitive devices, the group should read as follows: "organic light emitting devices, liquid crystal displays, displays using electrophoretic inks, light emitting diodes, displays using light emitting polymers, electroluminescent devices, phosphorescent devices, devices using electrophoretic inks, organic solar cells, inorganic solar cells, thin film batteries, or thin film devices with vias, or combinations thereof." Otherwise, it would be unclear how light emitting polymers and electrophoretic inks are devices on their own.
4. Claims 14-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 14 recites "an edge-sealed, encapsulated environmentally sensitive device comprising: optionally, a substrate; at least

Art Unit: 1772

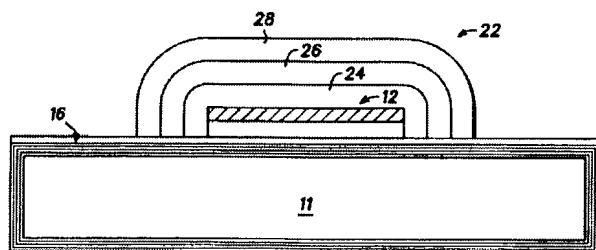
one ... barrier stack". The term "optionally" qualifies everything after it, and although there is a semi-colon after "substrate", the "at least initial barrier stack ..." can be read to qualify as being optional as well. It is suggested that the first line "optionally, a substrate" be deleted, and that the other "substrate" nouns be qualified with "optional" instead.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Harvey, III et al. (previously cited US 5,686,360).

Harvey, III et al. teaches an edge-sealed encapsulated environmentally sensitive device (organic light emitting device as defined by original claim 21 of Applicant's specification). The organic LED array 12 below is encapsulated with multilayer sealing system 22 (column 5, lines 20-30). The term "optionally" is interpreted to qualify everything that comes after it in independent claim 14.



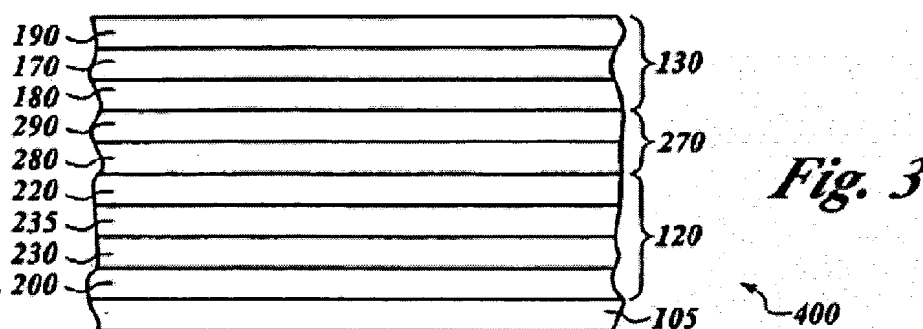
Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being obvious over Graff et al. (WO 00/36665) in view of Harvey, III et al. (previously cited US 5,686,360).

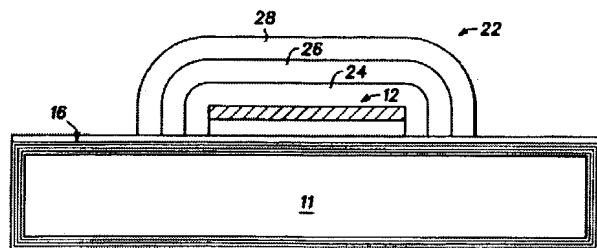
Graff et al. has an encapsulated environmentally sensitive device (organic light emitting device as defined by original claim 21 of Applicant's specification) and which comprises a substrate 105, an organic light emitting stack 120, a first barrier stack 270, wherein the first decoupling layer (polymer layer 280) is beneath barrier layer 290 (page 6, lines 1-5), and a second barrier stack 130, wherein the first decoupling layer (polymer layer 180) is beneath barrier layer 170 (column 5, lines 1-5). See Figure 3 on the next page.

Graff et al. teaches that barrier stack 130 is draped conformally over the organic light emitting device 120, thus encapsulating it and the first barrier stack 270 (column 8, lines 15-20). Hence innermost decoupling layer 180 of barrier stack 130 is in contact with the substrate 105 as well as layers in stack 270, effectively encapsulating barrier layer 290 and in contact with decoupling layer 280. Graff et al. teaches that the barrier layer and the decoupling layer can be interchanged (column 5, lines 1-10). Thus if barrier layer 170 is interchanged with decoupling layer 180, and barrier layer 290 is interchanged with decoupling layer 280, barrier layer 170 can be in contact with substrate 105 and also in contact with barrier layer 290 to encapsulate decoupling layer 280 instead. The surface areas of the overlying layers are greater than the surface areas of the layers beneath as demonstrated by Harvey, III et al.



Harvey, III et al. has a barrier stack which comprises layers 24, 26, 28, encapsulating a first stack 12. See the figure on the next page. The innermost layer 24 of the second stack is in contact with the first layer of the first stack 12, encapsulating the hatched layer. If the hatched layer is the first decoupling layer of Graff et al., then the first and the second barrier layers are in contact and seal the decoupling layer between them.

Harvey, III et al. demonstrates in the figure on the next page that it would have been obvious to provide the first barrier layer under the decoupling area with an area larger than the area of the decoupling layer in order to provide a better seal, or edge seal, with the encapsulating overlying second barrier layer in the invention of Graf et al. Harvey, III et al. also demonstrates that the encapsulating barrier layer will have a greater area than the area of the encapsulated environmentally sensitive device.



Graff et al. teaches that there can be more than one barrier layer and decoupling layer in the barrier stack (column 5, lines 1-10). Thus there can be at least two decoupling layers and two barrier layers in each stack.

Graff et al. teaches that the barrier layer comprise material selected from opaque metals, ceramics or polymers (column 8, lines 10-15) (claim 8), and transparent metal oxides, metal nitrides, metal carbides, metal oxynitrides, or combinations thereof (column 8, lines 5-15) (claim 7).

Response to Arguments

9. Applicant's arguments with respect to claims 1-12, 21 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

10. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 14-19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. Note that the allowance is based on the Examiner's interpretation of claim 14 to limit the qualification of the term "optionally" to the substrate.

12. Claim 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: the closest cited prior art WO 00/36665, even in combination with US 5,686,360, fails to teach the combination of multiple barrier stacks, multiple barrier/decoupling layers wherein the first barrier layer of the first additional layer is in contact with a third or fourth barrier layer and at least one barrier layer of at least one initial barrier stack is in contact with at least one barrier layer of at least one additional barrier stack, encapsulating the environmentally sensitive device to form a composite edge-sealed encapsulated environmentally sensitive device.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1772

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
Sow-Fun Hon

02/27/04

[Signature]
HAROLD PYON
SUPERVISORY PATENT EXAMINER

1772

3/5/04